

KODAK*photo notes*

for registered owners of the
Kodak Reference Handbook
and the
Kodak Photographic Notebook

Wider Horizons with Kodak Tri-X Film

The new Kodak Tri-X Film, either roll or miniature, can add at least an extra stop to your camera lens. If you have a camera with an $f/4.5$ lens, for example, you can now have the effect of an $f/3.5$, or better, lens.

Its Use and Characteristics. This new film has an emulsion based on new emulsion discoveries which allow a great increase in film speed while retaining approximately the low graininess and high definition of medium-speed films. It is similar to the new Kodak Royal Pan Film and should not be confused with the older Kodak Tri-X Panchromatic Film (in sheets).

The exposure indexes are 200 for daylight and 160 for tungsten light. These are conservative ratings and include the usual safety factor so that, on the average, you can give at least one stop less exposure than the meter reading would indicate with no loss in negative quality. And, if all your equipment variables happen to work toward giving more effective exposure than the settings would indicate, you might be able to cut the exposure two stops, or more.

If you find that the negatives made with your particular equipment under your working conditions are consistently heavier than you like, you can make a few test exposures of typical subjects to find the exposure change to suit your particular needs.

Due to the great sensitivity of this film, the probability is that high shutter speeds will be used with small apertures.

Since all shutter blades must take some time in opening and closing, the efficiency at high speeds may be about 50 percent with the large apertures at which the shutters are calibrated. With the small lens openings, the efficiency is greatly increased to the point where the exposure may be as much as doubled. You may find, therefore, that to get a thinner negative with these combinations of high shutter speed and small lens opening, the settings must be reduced.

Available Light. Pictures made with available light have a naturalness, warmth, and spontaneity which is seldom matched by other lighting. In the brightly lighted interiors of schools, gymnasiums, cafeterias, in-

dustrial plants, commercial establishments, art galleries, museums, exhibition halls, etc. good pictures have been made at exposures of 1/100 at $f/5.6$. The lighting level will vary widely, of course, from place to place and also within the hall itself. A sensitive photoelectric exposure meter is a great help in these situations.

The amount of light present in rooms at home varies so widely that general recommendations are difficult to make. Good negatives have been made in an average-size room on sunny days near a 3 by 5-foot window at 1/50 at $f/5.6$. At night, with the regular tungsten lighting, 1/25 at $f/3.5$ yielded good negatives. Pictures of a normal television screen were made at 1/25 at $f/4.5$.

Flash. More opportunities than ever are yours with flash and flood lighting. The higher shutter speeds and smaller lens openings are a tremendous advantage in indoor action pictures, such as those of basketball games, swim meets, ice shows, boxing matches, etc. For example, with a shutter having Class M synchronization and using a No. 5 or 25 lamp in the usual 5-inch reflector, you can take action shots at 1/200 second and $f/8$ from 20 feet away.

You can readily see that in the home, especially for close-ups, you may not be able to use a small enough lens opening and high enough shutter speed to avoid overexposure. There are several ways of reducing the light intensity for a more accurate exposure, and sometimes a better lighting effect is achieved. If the synchronizing arrangement of your shutter allows, you can use one of the

smaller lamps or you can use a layer or two of clean white cloth, such as a handkerchief, over the flash reflector. This latter results in less light and also provides diffuse and often-times more pleasing lighting. One layer of a typical white handkerchief cuts the light by about one stop.

Other methods are described in the Kodak Data Book "Flash Technique" sold by Kodak dealers.

Electronic Flash. These techniques can also be used with electronic flash. Because the light output varies so from make to make, we recommend that you derive your own guide number. Make exposures of an average subject 10 feet away at $f/11$, $f/16$, $f/22$ and $f/32$. Judge the correct f -number from inspection of the negatives, and multiply by 10; the resulting guide number should suit your set of conditions.

Flood. With photofloods you can study the lighting effect. Now you can avoid dazzling your subject by using the above methods to dim the lights.* It has always been the aim of first-class photographers to make their close-ups of people with low-intensity light, resulting in better expressions and more realistic lighting.

For rapid recording of a sequence of events, you might like to try using a photo-light bar, such as the Brownie Movie Light, with one or two reflector floods. Typical exposures are:

1/25 $f/11$ 6 to 10 ft	(two No. PH 375 lamps)
1/50 $f/16$ 4 ft	(two No. PH 375 lamps)
1/50 $f/11$ 4 ft	(one No. PH 375 lamp)
Snapshot 4 ft	(two No. PH 375 lamps)

*Because photoflood lamps get very hot in use, keep the material a few inches away from the bulb. Fibre glass is a good material.



1/2 sec. at f/5.6



1/25 sec. at f/2.8

NOTE: All pictures made with available light and normal development



1/100 sec. at f/2



1/50 sec. at f/3.5



1/25 sec. at f/11
Brownie Movie Light at 8 ft.

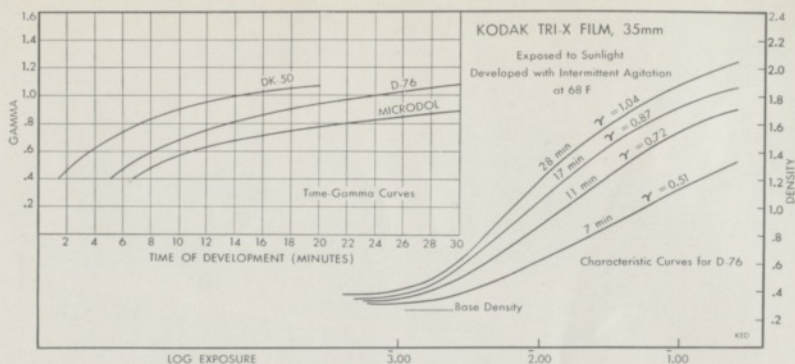


1/25 sec. at f/3.5

1/50 sec. at f/3.5

1/25 sec. at f/5.6





Recommended Development Times at 68 F (20 C)

Kodak Developer	Continuous Agitation	Intermittent Agitation
Microdol	10 min	12 min
D-76	10 min	12 min
DK-50	5 min	7 min
DK-60a	3½ min	5 min

Note: Kodak Developer DK-20 and other developers containing silver halide solvents, such as thiocyanates or thiosulfates, should not be used as they may form a scum on the surface of the film.

The above developers are highly recommended for both Tri-X and Royal Pan Films. They contain nothing detrimental to either film.

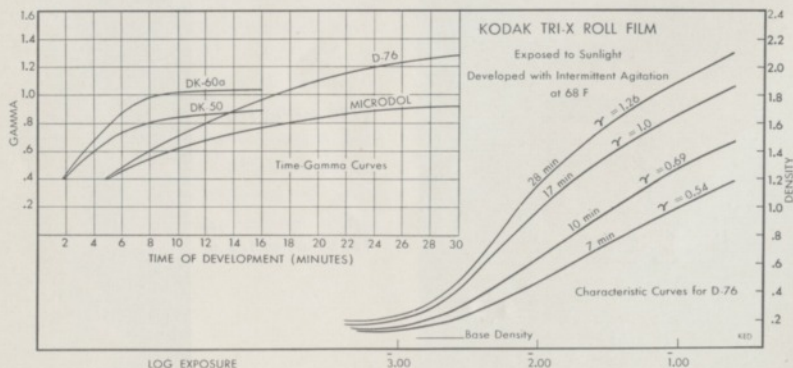
Identification. An improved new-style backing paper provides greater visibility of the exposure numbers in the ruby window of the camera and also enables the film name to be printed just preceding each exposure number. This feature acts as a re-

minder as to the kind of film in the camera each time you advance the film.

Negatives Numbered. The Frames of 120 rolls are marked with latent images for cameras making 8 to 12 exposures. Numbers are used for the 1 to 12 series, and the letters A to H are used for the 8-exposure series. It is expected that this marking will be extended to the 620 rolls in the future. The 135 magazines have regular frame numbers.

Color Balance. Panchromatic—high-green, low-red sensitivity for excellent flesh tones. This new film should not be confused with Kodak Tri-X Panchromatic Film (in sheets) which is a high-red-sensitive panchromatic film.

Spectrograms will be found on the back page.



SAFETY FACTORS IN EXPOSURE RECOMMENDATIONS

General experience and research have shown that for each negative film a certain minimum exposure is required for excellent print quality. Increasing exposure by several times has no appreciable effect on the print quality, but even slight underexposure causes a definite loss.

Daylight *exposure tables* and *Kodaguides* have included a safety factor of about four times for black-and-white film to allow for misinterpretation of lighting or subject type. The safety factor in *exposure indexes* for the same materials is about two times, since a meter, if properly used, can be more accurate than an estimate. This means that when all picture-taking factors are accurate, exposure can be reduced by these safety factors without loss in quality. If your negatives are consistently of excessive density you may give less exposure than recommended.

Some magazine articles change or disregard safety factors by giving exposure-index values higher than our recommendations. For example, if the normal safety factor of $2.5\times$ in the daylight rating of 200 for Tri-X Film is disregarded, and if the high shutter efficiency at low aperture gives a time twice as long as marked, then an "exposure index" of $200 \times 2.5 \times 2 = 1000$ would be apparently justified. Likewise, if some underexposure is tolerable, even higher "indexes" would do.

Obviously, the publishing of a series of exposure indexes for one

film and for various situations and quality levels would lead to chaos. Kodak therefore publishes *one* exposure index per film and light source and this includes the safety factor. The photographer should start with it. The results are usually good, but if a change is consistently indicated, the photographer *should make that change*. He can assign an "exposure index" that suits his own equipment and requirements. Changing to a higher index will give less exposure. In black-and-white, a change of $2\times$ can be tried, for example from 200 to 400. In color, especially with reversal films, changes should be made in smaller ratios, such as 32 to 40.

Both tables and indexes for non-color films exposed by flash and flood light have safety factors of about 2.

The daylight exposure tables (and the exposure index) for the new Kodak Tri-X Film have a lower safety factor (about two times) than do existing tables for Kodak Super-XX, Plus-X, and Verichrome Films. As experience indicates that a factor of two is ample it is likely that it will be used in these tables also.

Color films have less exposure latitude than black-and-white films, and allow little or no safety factor. Therefore, their tables and guides call for the same exposure settings as are normally indicated by an exposure meter. As a result, there are some apparent discrepancies between recommendations for black-and-white and color films.

NEW FAST KODAK EKTACHROME FILM (For Miniature Cameras)

You will be interested in our new Kodak Ektachrome film for 35mm and 828 cameras. This new film yields positive color transparencies for projection and is designed for processing by the user or by color laboratories and photofinishers — *the price does not include processing.*

Perhaps the most outstanding property of this film is its high speed. It does for the color photographer what the new Kodak Tri-X roll film does for the black-and-white worker.

Two types of the new Ektachrome film are supplied, one for daylight and one for artificial light. The daylight-type film is approximately three times as fast as Kodachrome Film, Daylight Type. This means wider utility, more depth of field because of smaller lens openings, easier picture taking in shade, on dull days, and, in general, a greatly increased number of picture possibilities.

Unlike Kodachrome Film Type A, which is color balanced for photoflood lamps and requires a filter when used with type M lamps, Ektachrome Film, Type F is balanced for most wire-filled lamps such as No. 5 or 25. No filter is required and the speed is about twice that of Kodachrome Film, Type A *when used with this type of lamp.* It was designed for flash lamps because they are now the most popular artificial light in photography. With photoflood lamps and Kodak Wratten Filter No. 82A, the exposure index is 16.

It is quite practical for an indi-

vidual to process Ektachrome film because the only precise controls necessary when using the prepared processing chemicals involve times and temperatures. The tolerances are not difficult to maintain by working carefully. The only equipment required for processing the roll films is a suitable roll-film tank, a No. 2 photoflood lamp set up for the re-exposure, and means of controlling developer temperature.

Please note, however, that these new films should be processed only in solutions prepared with the Kodak Ektachrome chemicals marked "Process E-2." The chemicals provided for Ektachrome sheet and roll films will *not* give satisfactory results with the miniature-camera films.

Kits of E-2 chemicals are sold in sizes to make one pint, one-half gallon, and 3½ gallons. Components will also be available separately.

Kodak Ektachrome Ready-Mounts are available from Kodak dealers for mounting your processed film.

Some differences in color rendering between Kodachrome and Ektachrome films are inevitable. The two processes are different and different dyes are used. Any preference between color rendering by Kodachrome and Ektachrome films will be purely a matter of personal taste. The object of any color process is to provide pleasing color pictures. *It is not possible for any commercial process to provide an exact match in color with the original object.*

Transparencies on Ektachrome film are somewhat lower in contrast than those on Kodachrome film. For this reason, contrasty lightings are rendered better. Other things being equal, better color prints can be made from these softer originals.

No color process is completely "grainless." Kodachrome film, being quite slow, shows almost no graininess. The graininess of Ektachrome film is roughly similar to that of fine-grain black-and-white miniature films. The new Ektachrome 35mm and 828 film should not be confused with Ektachrome sheet or roll films, from which they differ in many respects. As soon as practicable the new, faster emulsion will be used for Ektachrome sheet film and the larger roll sizes (120, 620, etc.). The new film is supplied in 20-exposure magazines (E135 and E135F), in 100-foot bulk rolls (E402 and E402F), and in 8-exposure 828 rolls (E828 and E828F).

Because this film is so new, practical experience with it is limited and the data and instructions given here must be regarded as somewhat tentative. The instruction sheet packed



with the film bears the most recent data, although not in full detail.

Exposure Indexes are as follows:

Film	Daylight	Photoflood Light
Daylight Type	32	*
Type F	20†	16‡

*No recommendation as yet.

†With Kodak Daylight Filter for Kodak Type F Color Films (No. 85C).

‡With Kodak Light Balancing Filter No. 82A.

These indexes are for meters marked for American Standard Exposure Indexes. Remember that with any color film certain meter-camera combinations may make it necessary to use a slightly different meter setting than the one suggested. A few test exposures at settings somewhat above and below the published value will easily remove any doubt.

Guide numbers (No. 5 and 25 lamps in 4 to 5-inch polished reflector):

Open, 1/25 sec—120	1/100 sec—95
1/50 sec—110	1/200 sec—70

TENTATIVE KODAK WRATTEN FILTER RECOMMENDATIONS FOR EKTACHROME 35MM AND 828 FILMS

	Daylight Type	Type F
Daylight, clear or hazy sun	None	No. 85C
Daylight, bluish, open shade or overcast	Skylight filter (No. 1A)	No. 85C
Blue flash lamps No. 5B, 25B	None	Not recommended
Flash lamps No. 2, 5, 8, 22, 25	Not recommended	None
Flash lamp No. M2	Not recommended	No. 81C
Flash lamps SM, SF	Not recommended	No. 82B
Photoflood lamps	No recommendation at present	No. 82A

wider horizons with Tri-X

(Continued from page 4)



BLUE GREEN RED
Color Sensitivity of Kodak Tri-X
Roll Film to Sunlight



BLUE GREEN RED
Color Sensitivity of Kodak Tri-X
Roll Film to Tungsten Light

Bring your Reference Handbooks up-to-date by replacing outdated sections with the latest editions of these Kodak Data Books sold by Kodak dealers:

Flash Technique—First Edition

Kodak Lenses, Shutters, and Portra Lenses—Fourth Edition

Kodak Films (Black-and-White)—Sixth Edition

Filters and Pola-Screens—Copyright 1950

Enlarging with Kodak Materials and Equipment—First Edition

Kodak Papers—Fifth Edition

Processing Chemicals and Formulas—Fifth Edition

Copying—Fourth Edition

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